Data Structure Report of Small-scale sampling at Mealasta, Lewis, Western Isles of Scotland

Project Summary

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Sampling in progress at Mealasta

Summary

The area of Mealasta is known to be the location of medieval settlement, with a possible nunnery on the headland. A sampling exercise was undertaken in September 2011 by a team from Durham University and Society of Antiquaries of Scotland, led by Dr Mike Church and Dr Simon Gilmour, to record a section of the shoreline which was becoming eroded. The strategy was to take soil samples and coring samples from the immediate area of the erosion to ascertain the date of the archaeology that is evident there and perhaps define the nature of the site. The sampling strategy involved removing 14 soil samples for analysis in the laboratory and 6 core samples that were taken at various points behind the eroding edge for sediment analysis. The post-fieldwork analysis is still on-going; this document presents the stratigraphy of the recorded section together with survey data and section drawings. The fieldwork was commissioned by Dr David Caldwell of National Museums Scotland and was funded by the Hunter Trust.

Introduction

Mealasta is located on the west coast of the Isle of Lewis, south of Uig and the Mangersta headland (Figure 1). The geology of the area is similar to other western coastal areas in Lewis with machair stretching between the shoreline and the upland peat areas further inland. The machair provides good preservation for calcium based materials such as bone and shell which do not survive in the more acidic inland peat landscape. Pottery sherds also survive well on machair sites (Griffiths and Ashmore 2004: 50). The area of Mealasta is rich in archaeology demonstrating evidence for a souterrain (Thomas,1870), horizontal water mills of probable post-medieval date, a probable religious complex including the foundations of a small church and graveyard which remain undated (Caldwell et al 2009) and earthwork remains of a village with a field system and nearby marine industry which probably date to the late medieval to post-medieval (Figure 2). Small finds from the area include burnt flint, post-medieval pottery, gunflint and a 12^{th}-13^{th} century bronze finger ring (Treasure Trove Case TT.107/03). The sampling survey was undertaken to ascertain the date of the archaeology that is being damaged by coastal erosion and can be seen in the eroding edge of the shoreline.

Methodology

The extent of the eroding section was first assessed by walk-over survey and then the eroding sections were photographed. The sections were then hand-cleaned by trowel to clarify the stratigraphy exposed and then photographed and drawn. Small bulk samples were then taken from key stratigraphic contexts in the eroding face for environmental analysis and radiocarbon dating. 6 boreholes of 20mm diameter were then cored using a bucket auger behind the eroding section to identify if there were any deeper archaeological deposits. All of the boreholes and the sampling points in the eroding section were then re-instated by covering over with turf.

Fieldwork results

Figure 3 presents the running-section along the eroding face (see Figure 2 for location within the site) and Figure 4 presents the Harris Matrix of the archaeological contexts. Figure 5 presents the results of the bore-hole survey. A previous survey undertaken by

Barrowman in 2005 (Barrowman, 2006) noted the eroding edge in the sampling area, and the eroding edge has advanced by up to 2 m. in places by 2012 (see Figure 2).

The whole eroded section is overlain with turf; below the turf an amended soil (001) runs across the entire eroding section. Context 001 was sampled (S001) at the northern end of the eroding section. This context contained increased concentrations of shell, suggesting possible discrete midden dumps. One such shell deposit in the section between survey markers E and F was sampled (S003). The natural sand (017) underlies all of the contexts and between survey markers C and D includes within it a lens of dark grey sandy soil with numerous shell inclusions (002) and a lens of orange brown and black peat ash (003). The lens of peat ash (003) sits immediately below the lens of sandy soil (002) and their arrangement in section suggests that they could be part of a cut into the base layer of natural sand (017). Samples S002 and S005 were taken from 002 and 003 respectively.

At the northern end of the eroded edge there is a relatively clear horizon between the amended soil (001) and the natural sand below (017). Further south in the section, between survey markers F and G context 004 appears to a dark grey sandy fill of a possible pit cut into the natural sand (017). Close to this, about 1m further south in the section is a similar pit (005) this time a well-defined rectangular pit filled with dark grey sand. The fill is markedly different from the amended soil (001) above. A soil sample (S006) was taken from this pit feature for analysis. In the middle of the eroding edge, between survey markers G and H, a dark grey brown sandy deposit (006) fills the area between two large stones, the fill abuts the stones on either side and overlies a very dark brown layer of soil (007) in which a large piece of bone (as yet unidentified) was embedded. The delineation of this area with stones, the dark possible floor layer (007) and the absence of amended soil (001) above fill 006 could suggest that this represents a building. Samples were taken from the fill 006 (S007) and the possible floor level 007 (S008) for analysis. Context 008, a very dark layer of soil sits below the possible floor (007) and above the natural sand (017). The exact relationship of this context with the possible building is obscured by the rabbit damage which is a feature of the entire eroding section. It is possible however that 008 represents either a pit cut into the floor (007) or an earlier floor level within the building. The possible building continues south into section I-J. Deposits 009 a grey sandy band overlying 010 a darker grey sandy deposit may represent building fills as they abut large stones in the south side of the section. Below 010 lay another very thin, black deposit (011) which may be the same as 007 in the northern end of the possible building. There is a clear sharp horizon between 011 and the natural sand (017) below. Samples S011, S012 and S013 were taken from deposits 009, 010 and 011 respectively for analysis.

Context 012, a clear lens of burnt peat lay immediately below a large and small stone in a concentration of loose stones between survey marker I and K. These stones could suggest some form of structure. Immediately beneath the burnt peat (012) was a thin black deposit (013) at the base of the orange peat ash (012). Below the thin deposit 013 lay a more sandy brown deposit (014). It is unclear whether this represents amended soil, like 001 or perhaps the fill of a collapsed structure. The only small find to be recovered from the section (a piece of deer antler) was located in the deposit 014. Below deposit 014 was a further dark grey sandy layer within the area of stones which could represent a structural fill. A sample (S014) was removed from deposit 015 for analysis. These burnt deposits directly overlie the natural (017) beneath stones

and in an area where there is a concentration of loose stone in the section; it may suggest a collapsed structure.

At the southernmost end of the eroded section, between survey markers K and L another pit feature was discovered. This pit, just over a meter long and filled by dark grey sandy deposit 016, was cut into the natural sand 017. A soil sample (S009) was taken from the fill for analysis.

The borehole survey established that there were no other layers of archaeology immediately below the material revealed by the eroding section and that clean machair sand underlain the material for at least 2 metres in 4 out of the 6 boreholes. No material was therefore retained for environmental and radiocarbon dating analysis from the boreholes.

Post-excavation analysis

The bulk samples were processed in the Environmental laboratories of Archaeology, Durham University. Routine samples of ~0.1 litres were taken from these bulk samples for sedimentary analysis. The bulk samples were processed following Kenward *et al*. (1980), using 1.0 and 0.3mm sieves for the flot and a 1.0 mm sieve net to catch the residue. The flot and residue were sorted and the resulting material is forming the basis of research dissertation by Nikki Chiampa (MSc Archaeological Science at Durham University). A single barley grain from Context 011 has been submitted to SUERC for radiocarbon dating (funded by Durham University).

Acknowledgments

We would like to thank the Hunter Trust for funding the field research and Historic Scotland for providing Schedule Monument Consent for the field sampling. We would also like to thank the Uig and Hamnaway Estate and John Darley (Clerk of Breanish Grazings) for permission to take samples.

References

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Thomas, F.W.L. 1870. On the primitive dwellings and hypogeal of the Outer Hebrides. *Proceedings of the Society of Antiquaries of Scotland* **7**, 153-95.

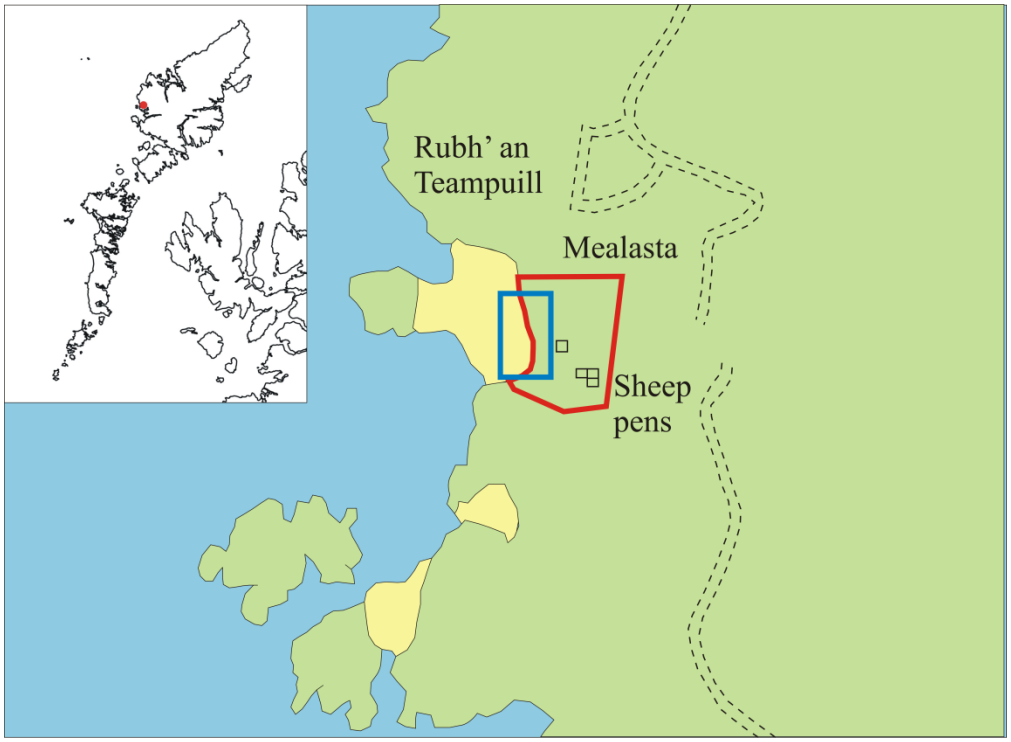


Figure 1. Location map showing Scheduled Area in red and sampling area in blue box

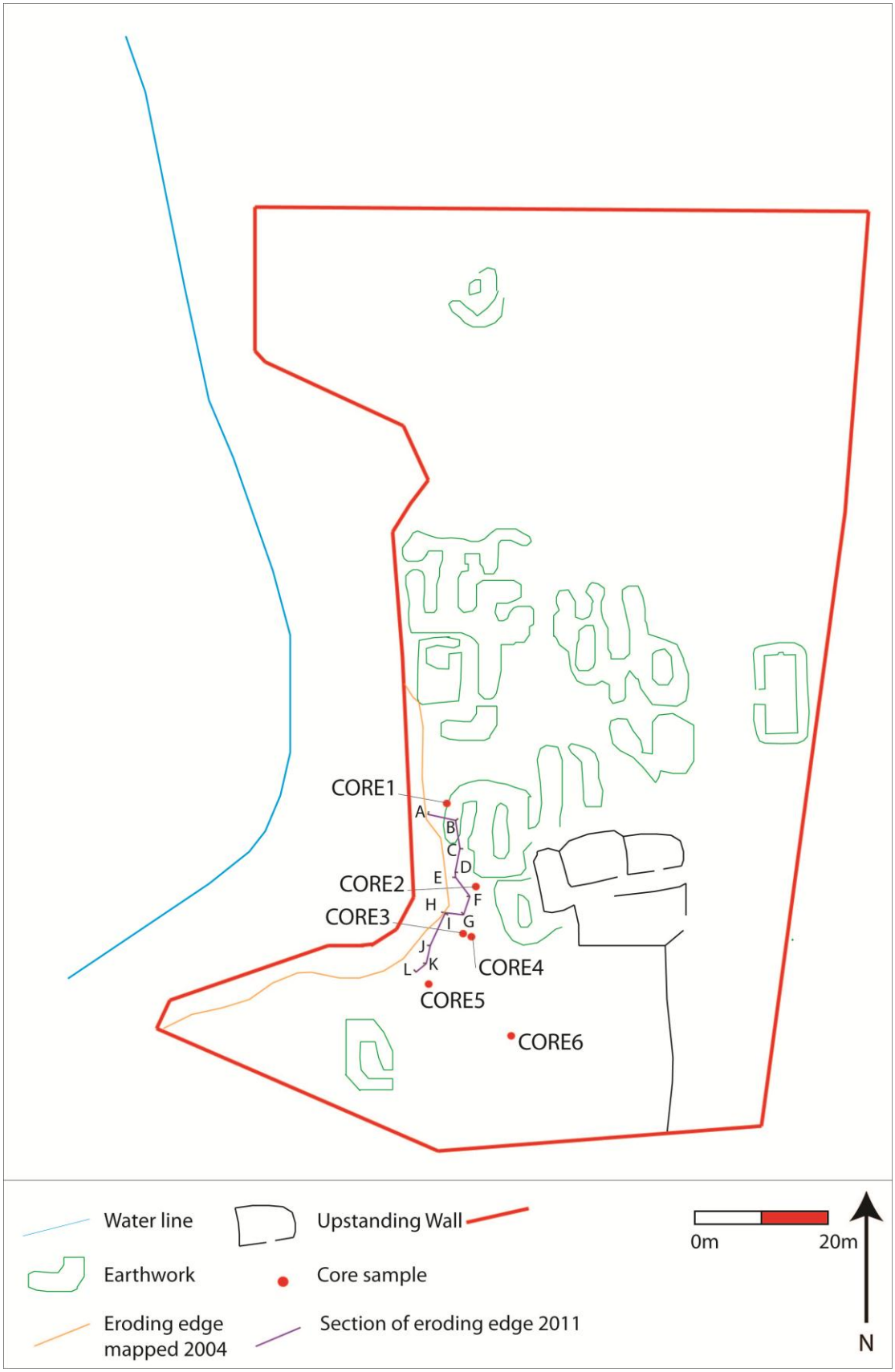
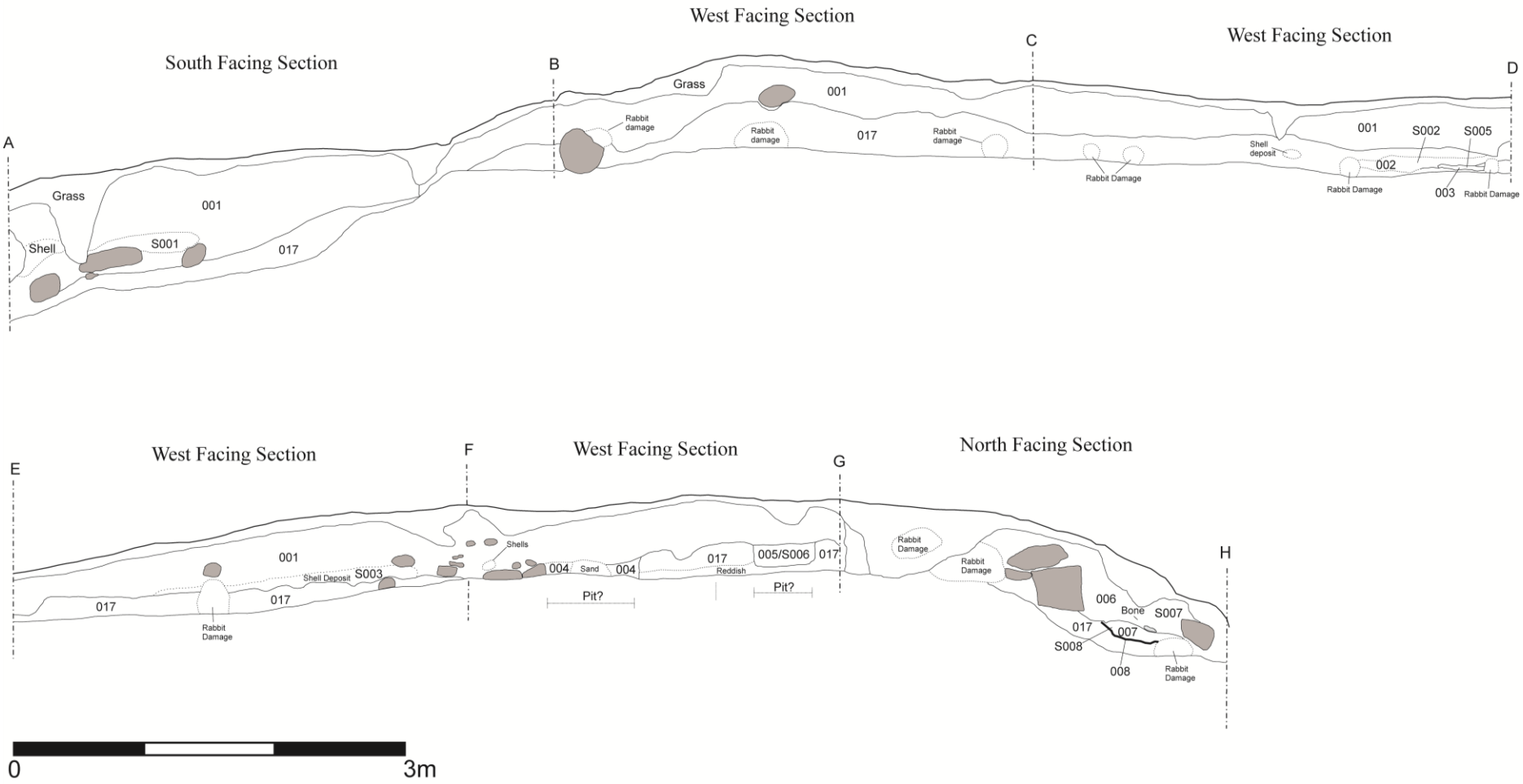


Figure 2. Survey of Mealasta with eroding section and sampling points located


South Facing Section
West Facing Section
West Facing Section
A
B
C
D
Grass
001
Shell
S001
017
Rabbit damage
Rabbit damage
Rabbit damage
Rabbit Damage
Shell deposit
001
S002
S005
002
003
Rabbit Damage
Rabbit Damage
West Facing Section
West Facing Section
North Facing Section
E
F
G
H
001
Shell Deposit
S003
017
017
Rabbit Damage
Shells
004
Sand
004
017
Reddish
005/S006
017
Pit?
Pit?
Rabbit Damage
Rabbit Damage
006
Bone
S007
017
007
S008
008
Rabbit Damage
0
3m

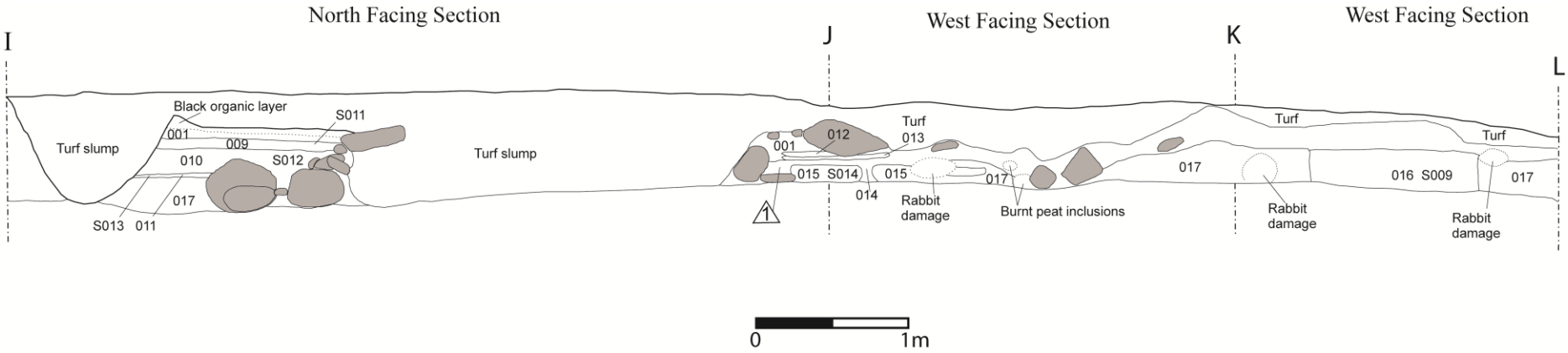


Figure 3. Eroding section at Mealasta

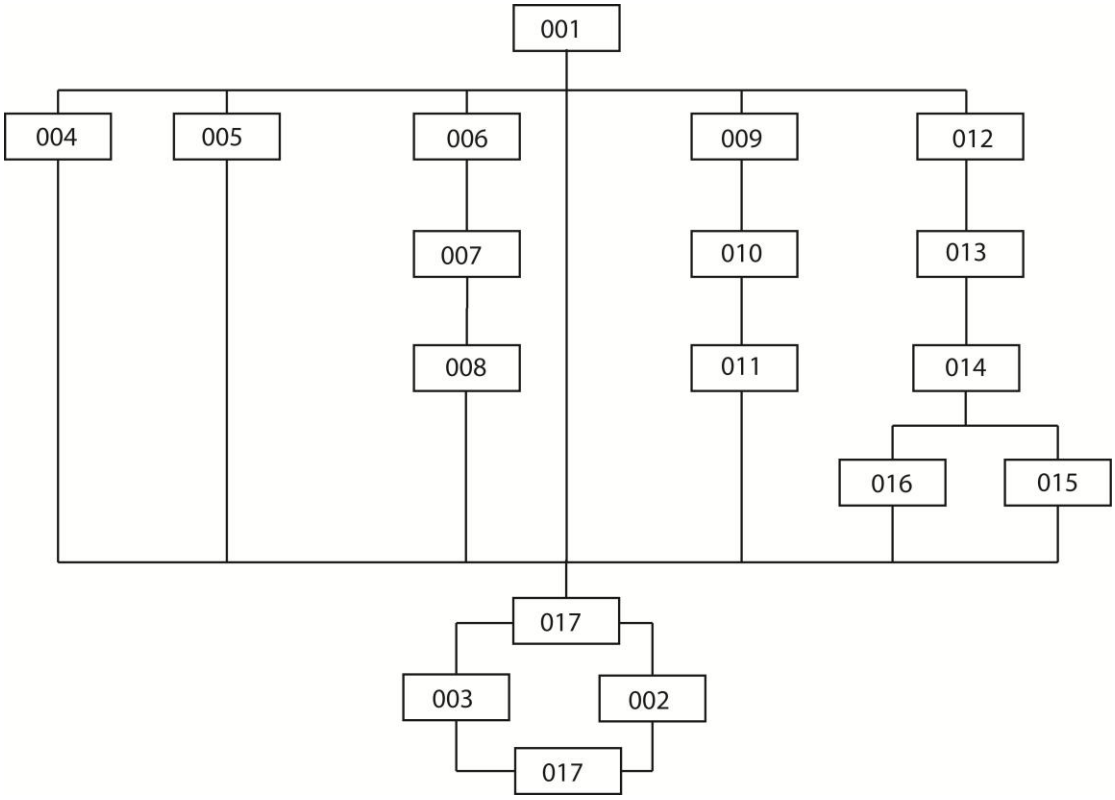


Figure 4. Harris Matrix of eroding section at Mealasta

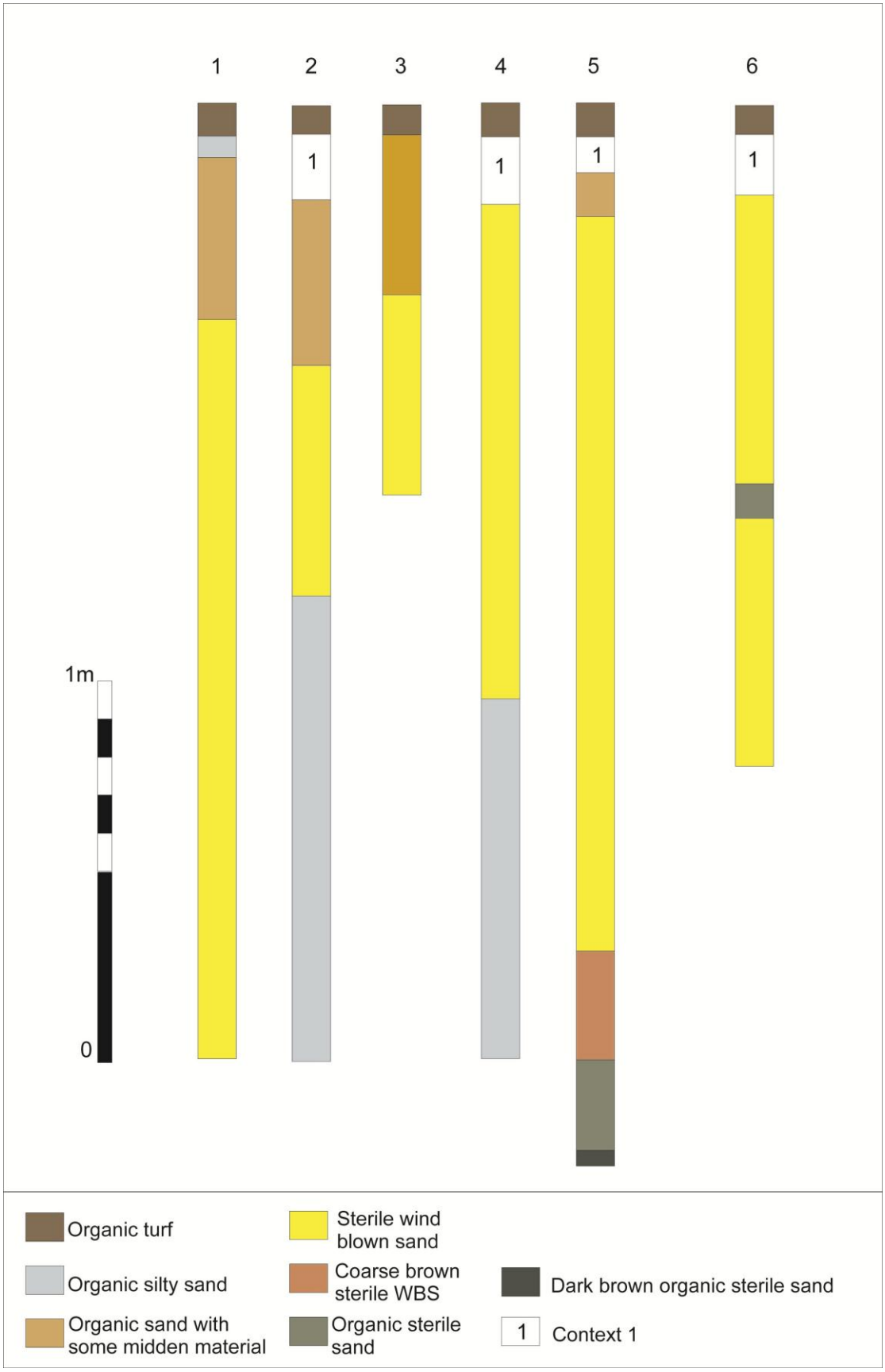


Figure 5. Borehole survey at Mealasta

Context List

Context Number	Description
1	Turf
2	Dark grey/brown sand
3	Orange/brown/black peat ash
4	Dark grey sandy material with burnt inclusions
5	Dark grey sandy material
6	Dark grey brown sandy material
7	Black soily deposit
8	Thin lens of black material
9	Grey sand
10	Dark Grey sand
11	Black soily deposit
12	Orange clayey burnt peat
13	Black deposit / interface of burnt peat
14	Brown sandy soil
15	Dark grey sand
16	Dark grey sand
17	Yellow/orange (natural) sand

Sample List

Sample	Context	Sample Type	Volume	Date	Initials
1	1	Bulk Sample	5 litres	20/09/2011	EB
2	2	Bulk Sample	2 litres	20/09/2011	SP
3	1	Bulk Sample	5 litres	20/09/2011	ARP
4	4	Bulk Sample	2 litres	20/09/2011	PRC
5	3	Bulk Sample	1 litre	20/09/2011	SP
6	5	Bulk Sample	2 litres	20/09/2011	EB
7	6	Bulk Sample	5 litres	20/09/2011	ARP
8	8	Bulk Sample	0.5 litres	20/09/2011	PRC
9	16	Bulk Sample	5 litres	20/09/2011	EB
10	012 & 013	Bulk Sample	0.5 litres	20/09/2011	SP
11	9	Bulk Sample	1 litre	20/09/2011	ARP
12	10	Bulk Sample	6 litres	20/09/2011	ARP
13	11	Bulk Sample	1 litre	20/09/2011	ARP
14	15	Bulk Sample	3 litres	20/09/2011	SP

Small Find List

Small Find Number	Context	Object Type
1	14	Deer antler

Digital Photograph List

Digital Photo Id	Description
MEAL11 DP1-5	Section from A to B
MEAL11 DP6	Working shot
MEAL11 DP7-9	Section from A to B
MEAL11 DP10-14	North end of section from B to C
MEAL11 DP15-17	South end of section from B to C
MEAL11 DP18-20	North end of section from C to D
MEAL11 DP21-23	South end of section from C to D
MEAL11 DP24-26	North-west end of section from E to F
MEAL11 DP27-29	South-east end of section from E to F and north end of section from F to G
MEAL11 DP30-32	Section from F to G
MEAL11 DP33	Working shot
MEAL11 DP34-39	Section from G to H
MEAL11 DP40-42	North end of section from I to J
MEAL11 DP43-45	South end of section from I to J
MEAL11 DP46-48	Section from J to K
MEAL11 DP49-51	Section from K to L
MEAL11 DP52-54	Slumped turf in eroding area
MEAL11 DP55-59	Working shots
MEAL11 DP60	View from site towards Teampuil headland
MEAL11 DP61	Reinstatement of Core 1
MEAL11 DP62-65	Working shots
MEAL11 DP66-72	View of village from north
MEAL11 DP73-75	View of village from east
MEAL11 DP76-80	View of village from south
MEAL11 DP81-87	Various shots of village earthworks from south
MEAL11 DP88-90	Contexts 1, 2, 3 and 17 cleaned
MEAL11 DP91-94	Context 4 cleaned
MEAL11 DP95-97	Contexts 5 and 17 cleaned
MEAL11 DP98-101	Contexts 6 to 8 cleaned
MEAL11 DP102-105	Contexts 9 to 11 cleaned
MEAL11 DP106-110	Contexts 12 to 15 cleaned
MEAL11 DP111-115	Context 16 cleaned

MEAL11 DP116-125	Reinstatement shots
MEAL11 DP126	View of site from south-west
MEAL11 DP127-132	Panorama of site to seascape from north to south
MEAL11 DP133	View of site from south
MEAL11 DP134-142	Various shots of eroding section to north of site and immediately south of Teampuil headland

Drawing List

Drawing Number	**Description**
1	Section Drawings of Sections A-B, B-C, C-D, E-F, F-G and G-H at 1:20
2	Section Drawings of Sections I-J, J-K and K-L
3	Coring Profiles of Cores 1-6 at 1:10 scale